

REMARKS

Prior to the filing of this response, claims 37-39, 51-52 and 67-76 were pending in the application.

In this response, claims 37, 71, 74 and 76 are amended to delete the term “polymer coated composite substrate.” This amendment clarifies that, after application of the crosslinkable primer coating composition, the compressible mat is compressed and heated to form a wood composite construction material such as, for example, hardboard, medium density fiberboard, oriented strand board, particle board, or plywood. As a more specific example, the wood composite construction material may be a finished door or a finished exterior hardboard siding product. This amendment is supported in the specification, for example, on page 1, lines 22-25.

Claims 37, 71, 74 and 76 are also amended to clarify that the crosslinkable primer coating composition is applied directly to the surface of the compressible mat and it not carried on a paper carrier sheet. This embodiment of the invention is described in the specification, for example, on page 3, lines 15-17.

Claims 38-39 are cancelled without prejudice or disclaimer, and claims 72-73 are amended for proper dependency from their respective amended independent claims.

In view of the above amendments and the following remarks, Applicant respectfully requests further examination of the application and reconsideration of the rejections set forth in the Office Action dated January 20, 2010.

I. Claim Rejection Under 35 U.S.C. § 112

Claims 37-39, 50-52, and 67-72 stand rejected under the second paragraph of 35 U.S.C. 112 as indefinite for failing to particularly point out and distinctly claim the inventive subject matter.

In response to this rejection, as noted in detail above, independent claims 37, 71, 74 and 76 are amended to remove the term “coated composite substrate,” which should make clear that the primed compressible mat is heated and compressed to form a wood composite construction material such as, for example, hardboard, medium density fiberboard, oriented strand board, particle board, or plywood.

Applicant respectfully submits that the amended claims particularly point out and distinctly claim the inventive subject matter, as required by 35 U.S.C. 112, second paragraph. Reconsideration and withdrawal of the indefiniteness rejections are respectfully requested.

II. Claim Rejection Under 35 U.S.C. § 103(a)

In paragraph 4 of the Office Action, page 4, claims 37-39, 50-52, and 67-76 are rejected under 35 U.S.C. 103(a) as obvious over Schedlitzki (DE 2224732; hereafter referred to as DE '732) in view of Cummings (US 3,529,993; hereafter referred to as Cummings), further in view of Helmer et al. (US WO 9622338; hereafter referred to as Helmer). Applicant respectfully traverses the rejection to the extent such rejections may be considered applicable to the claims as amended. The applied references fail to disclose or suggest the inventions defined by Applicant's claims, and provide no teaching that would have suggested the desirability of modification to arrive at the claimed invention.

The DE '732 reference describes a process in which a paper carrier sheet is pre-impregnated with an aminoplast resin.¹ The impregnated carrier sheet is then coated on one or both sides with a mixture of an aminoplast resin and an acrylic resin.² The impregnated and coated sheet is then applied to a wooden plate and this construction is pressed under pressure and heat to form a high gloss synthetic resin surface.³ The resin flows during the molding process to form a closed synthetic resin surface, and the sheet is joined to the wood material.⁴

In contrast, the presently claimed method does not include a paper carrier sheet for transfer of the crosslinkable primer coating composition. Instead, the primer is applied directly onto a surface of a compressible mat made of cellulosic materials such as wood fibers, particles, chips and flakes in a resin binder composition. The primer compositions of the present invention are selected to exhibit excellent hold out when applied to the compressible mat (i.e. the compositions do not sink too far into the surface of the compressible mat and remain on top), and the crosslinked matrix rapidly forms a surface suitable for receipt of subsequently applied top coats.

¹ DE '732 translation, page 3, examples.

² *Id.*, at pages 3-4.

³ *Id.*

⁴ *Id.*, at page 3.

The cited references fail to teach or suggest elimination of the primer carrier sheet. Therefore, the Office Action has not articulated a reason that one of ordinary skill in the art, following a review of DE '732 (or any of the cited references) would eliminate the carrier sheet and select a primer composition for direct application to the compressible mat as presently claimed. In view of DE '732, one of ordinary skill in the art would have no reasonable expectation that application of that aminoplast/acrylic resin directly on the surface of the compressible mat would have provided the proper surface properties (e.g., hold out), in the manufacturing process.

The present claims require application of a topcoat composition over the primer composition before the construction is heated in a press to form a finished wood composite article. DE '732 (as well as the other cited references) fails to even suggest application of a topcoat over the primed sheet prior to heating and pressing. The Examiner has not articulated a reason that one of ordinary skill in the art, following DE '732, would apply a topcoat directly on the primer coating as presently claimed, let alone why one skilled in the art would expect that such a top-coating step would have a reasonable expectation of success.

Assuming *arguendo* that the paper carrier in DE '732 were eliminated, the cited references would not provide one of ordinary skill with an incentive to replace the aminoplast/acrylic resins in DE '732 with the compositions described in Cummings. The aminoplast resins described in DE '732, which are formed by reacting amines and aldehydes, differ significantly from the compositions in Cummings, which are reaction products of polyamines and polyanhydrides (e.g. a reaction product of a vegetable or a fish oil with maleic anhydride).⁵

The Examiner characterizes these compounds as "amino resins," apparently because they both use an amine reactant. However, the amines are an extremely large class of compounds, and the final reaction products in DE '732 and Cummings are completely different. Further, as noted above, DE '732 describes a process in which a paper overlay pre-impregnated with an aminoplast resin is heated in a press under pressure,⁶ while Cummings describes a primer that

⁵ Cummings, col. 5, lines 1-15.

⁶ See DE '732 examples, where the impregnated paper web is heated at 160-170 °C at a pressure of 15-18 kP/cm² for 40-60 seconds.

cures rapidly at room temperature when directly applied to a wood surface without required heating.⁷

The Examiner argues that these compounds each are made from an amine reactant and cure rapidly when applied to wood. However, as pointed out above, the aminoplast/acrylic compositions in DE '732 are not applied directly on wood, but to a surface of a paper sheet pre-impregnated with an aminoplast resin. In addition, even if the compounds in Cummings were compatible with this surface, applied thereon and cured rapidly, there is no reason, based on the teachings of the cited references, that the composition in Cummings would be suitable for use under the heating/pressure conditions in the press and be top-coatable as presently claimed.

Of all the compositions available in the art, Applicant respectfully submits that the Examiner has identified no rational reason that one of ordinary skill would substitute the compositions in Cummings for the primers in DE '732. Applicant respectfully submits that the Examiner is improperly using the present disclosure, which discloses using a quick drying traffic paint as a primer for a compressible mat, as a template to identify and select the composition in Cummings.⁸ It is well settled that the claimed invention must be considered as a whole, and cannot be broken into its component parts and a reference found corresponding to each component – simply identifying all the elements in the prior art does not make a *prima facie* case of obviousness.⁹

The Examiner argues that it would be obvious for a skilled artisan to substitute the traffic paint in Helmer for the traffic paint in Cummings (which was previously substituted for the aminoplast resin of DE '732, and which was never applied to a compressible mat). Such substitutions for substitutions are for different uses and fall far short of what is required to support a proper obviousness rejection. The Examiner characterizes the compounds in DE '732 and Cummings as “amino resins,” but for the reasons discussed above this characterization lacks technical merit. Applicant’s independent claims specifically require a primer composition that includes a polyimine and a volatile base. An imine is generally understood by those of ordinary skill in the art to refer to a nitrogen-containing organic compound having a carbon-to-nitrogen double bond, while an amine is generally understood to refer to classes of compounds derived from ammonia (NH₃), which would not be expected to include the carbon-nitrogen double

⁷ Cummings, col. 1, lines 38-39.

⁸ See, e.g. *In re Gorman*, 18 USPQ2d 1885 (Fed. Cir. 1991).

⁹ See, e.g. *Princeton Biochemicals, Inc. v. Beckman Coulter, Inc.*, 411 F.3d 1332 (Fed. Cir. 2005).

bond.¹⁰ The presently claimed primer composition, which includes an imine, is not an “amino resin” as taught by DE ‘732, and includes no amine reactant as taught in the Cummings reference.

Since the compositions are very different, the Examiner has not articulated a reason that knowledge of the amine compositions in DE ‘732 and Cummings would provide the skilled artisan with any incentive to select the imine compounds in Helmer’s traffic paint as a primer coating in a process for making a polymer coated article. Applicant submits that under these circumstances the selection of the Helmer traffic paint composition from the multitude of possible coatings would not be obvious to one of ordinary skill in the art, and the present obviousness rejection could only be attributed to the exercise of impermissible hindsight bias.

The Examiner takes official notice, citing the 13th Edition of Hawley’s Chemical Dictionary, that it is “common knowledge in the art” that certain polyethyleneimine compounds are “reactive toward cellulose.”¹¹ Therefore, according to the Examiner, the imines in Helmer would be compatible with the acrylic resin in DE ‘732.¹² As noted above, the aminoplast/acrylic resins in DE ‘732 are not applied directly to a wood surface, but to a surface of a paper sheet pre-impregnated with an aminoplast resin.¹³ Therefore, Applicant respectfully submits that one of ordinary skill would not consider reactivity toward cellulose when considering a compound to replace the aminoplast/acrylic resins of DE ‘732.

In view of the above, the fact that certain imines are reactive toward cellulose does not provide a convincing rationale for utilizing the compositions in Helmer, which are taught to be applied under ambient conditions without a topcoat, in the process of DE ‘732, which utilizes high heat and pressure and does not utilize a topcoat. Moreover, even were one to make such a substitution, the resulting combination would still have the paper carrier. Again, the Examiner has identified no teachings in DE ‘732 that would suggest use of the traffic paint in Helmer as a primer in making wood composite materials.

KSR International Co. v. Teleflex Inc. permits rejection of a claimed invention as being obvious when there is a design need or market pressure to solve a problem and there are a finite

¹⁰ See, e.g., *Hawley’s Condensed Chemical Dictionary*, 13th ed. (1997).

¹¹ Office Action dated March 3, 2008, page 4.

¹² Office Action dated March 3, 2008, page 4.

¹³ Example 1 of DE ‘732 states that the paper is impregnated with 160 g/m² of resin, while Example 2 utilizes 270 g/m² of resin.

number of identified, predictable solutions to pick from to solve the problem.¹⁴ Here, however, the person of ordinary skill in the art is not presented with a finite number of solutions to pick from, but rather, an infinite number of potential choices.¹⁵ The Examiner has not established that a person of ordinary skill in the art, without the benefit of having read the instant application, would have any reason to focus on or pick the traffic paint composition of the Helmer reference for use in the process described in DE '732.¹⁶ This is especially true given that the Helmer reference is directed to an end use (traffic paint) that is far removed from Applicant's field of endeavor (manufacture of wood composites).

KSR cautions that "[a] factfinder should be aware...of the distortion caused by hindsight bias and must be cautious against arguments reliant upon *ex post* reasoning."¹⁷ *KSR* does not permit selective picking and choosing bits-and-pieces of technology out of the nearly infinite possible available references.¹⁸ Nor can the combination come from the applicant's invention itself.¹⁹ The present obviousness rejection is based on hindsight following review of the present disclosure, and is improper.

In view of the above, the cited DE '732, Cummings and Helmer references, whether considered alone or in combination, fail to teach or suggest at least two important features of the presently claimed process: (1) elimination of the paper carrier sheet and application of a primer composition directly to the surface of the compressible mat; and (2) application of a top coat composition over the primer composition prior to heating and compressing. The elimination of the carrier sheet and reduction of the number of processing, heating and drying steps provides a more cost-efficient process for manufacturing composite articles. For these reasons alone, Applicant respectfully submits that the present claims are not *prima facie* obvious under 35 U.S.C. § 103(a) over DE '732 in view of Cummings and Helmer. Reconsideration and withdrawal of this rejection are respectfully requested.

¹⁴ 127 S. Ct. 1727, 1742 (2007).

¹⁵ The imino composition of the Helmer reference is one of a nearly infinite number of potential choices for a person of ordinary skill in the art to pick from.

¹⁶ *Ortho-McNeil Pharmaceutical, Inc. v. Mylan Laboratories, Inc.*, No. 2007-1223, slip op. at 9-11 (Fed. Cir. March 31, 2008).

¹⁷ *KSR Int'l Co.*, 127 S. Ct. at 1742.

¹⁸ *Id.*

¹⁹ *Id.*, see, e.g. *In re Oetiker*, 24 USPQ2d 1443 (Fed. Cir. 1992).

CONCLUSION

All claims in this application are in condition for allowance. Applicant respectfully requests reconsideration and prompt allowance of all pending claims.

Please charge any additional fees or credit any overpayment to deposit account number 50-1778.

The Examiner is invited to telephone the below-signed attorney to discuss this application.

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